APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
BENGZON, GREG C

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/714,031	HUBIS, WALTER
	Examiner	Art Unit	
	Greg Bengzon	2144	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 October 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-7,10,11,13,15,17,18,21 and 22</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-7,10-11, 13, 15, 17-18, 21-22</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

This application has been examined. Claims 1-7,10-11, 13, 15, 17-18, 21-22 are pending. Claims 8-9,12, 14, 16, 19-20 are cancelled.

Making Final

Applicant's arguments filed 10/24/2007 have been fully considered but they are not persuasive.

The claim amendments regarding -- ' *wherein the cache memory is used by the router to store data blocks exchanged between the first and second devices through the router, and wherein the cache memory is used to return data blocks from the cache memory to the first device in response to a received block level storage request directed from the first device to read data blocks from the second device without forwarding the storage request to the second device '* -- while altering the scope of the claims do not overcome the disclosure by the prior art as applied in the prior Office Action, as shown below.

The Examiner is introducing new grounds for rejection as necessitated by claim amendments and thus making this action FINAL.

Priority

The effective date of the claims described in this application is November 14,

2003.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6,11, 15,18 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Mullendore et al. (US Publication 2003/0185154) further in view of what was well-

known in the art.

Mullendore disclosed (re. Claim 1) a storage network appliance comprising: a

TCP/IP router for routing block level storage requests through a TCP/IP network

communication medium; (Mullendore-Paragraph 72, Figure 7) and a cache memory for

caching storage data blocks accessed by the block level storage requests. (Mullendore-

Paragraph 72, Figure 7)

Mullendore disclosed (re. Claim 1) _wherein the cache memory is used by the router to store data blocks exchanged between the first and second devices through the router, _(Mullendore-Paragraph 72, Figure 7)

While Mullendore substantially disclosed the claimed invention Mullendore did not disclose (re. claim 1) _wherein the cache memory is used to return data blocks from the cache memory to the first device in response to a received block level storage request directed from the first device to read data blocks from the second device without forwarding the storage request to the second device._

At the time of the invention it would have been well-known in the networking art that if a request for data is satisfied by a cache then there would be no need to forward said request for data. At time of the invention it would have been obvious to person of ordinary skill in the networking art to combine what was well-known in the art into Mullendore. The motivation for said combination would have been to improve data retrieval processing using cache storage.

Mullendore disclosed (re. Claim 2) a command and response processor coupled

to the router for interpreting block level storage requests (Mullendore-Paragraph 70)

routed through the router and coupled to the cache memory for caching data identified

in the interpreted block level storage requests.

Mullendore disclosed (re. Claim 3) wherein the block level storage requests are

iSCSI protocol commands and responses. (Mullendore-Paragraph 13)

Mullendore disclosed (re. Claim 4) wherein the command and response

processor is a SCSI command and response processor. (Mullendore-Paragraph 13)

Mullendore disclosed (re. Claim 5) wherein the command and response

processor is adapted to snoop the block level storage requests routed by the router.

(Mullendore-Paragraph 45)

Mullendore disclosed (re. Claim 6) wherein the router is adapted to store and

forward received requests. (Mullendore-Paragraph 72, Figure 7)

Mullendore disclosed (re. Claim 11) a method operable in a network router comprising the steps of: receiving a block level storage request from a network communication medium; and processing the received block level storage request in association with a cache memory local to the router. (Mullendore-Paragraph 72, Figure 7)

Mullendore disclosed (re. Claim 11) *responsive to receipt of a block level storage request from the first device to return data from the second device, locating data requested by the received block level storage request in the cache memory; returning the located data to a requesting first device in response to locating the requested data; and conditionally forwarding the received request to the second device only in response to failure to locate the requested data in the cache memory.*

At the time of the invention it would have been well-known in the networking art that if a request for data is satisfied by a cache then there would be no need to forward said request for data. At time of the invention it would have been obvious to person of ordinary skill in the networking art to combine what was well-known in the art into Mullendore. The motivation for said combination would have been to improve data retrieval processing using cache storage.

Mullendore disclosed (re. Claim 15) an iSCSI router comprising: in inbound network interface for receiving iSCSI storage requests and for returning responses to received iSCSI storage requests; (Mullendore-Paragraph 72, Figure 7)

an outbound network interface for forwarding received iSCSI requests to a destination device and for receiving responses from the destination device; (Mullendore-Paragraph 72, Figure 7)

a cache memory; (Mullendore-Paragraph 72, Figure 7) and

a control element coupled to the inbound network interface, coupled to the outbound network interface, (Mullendore-Paragraph 72, Figure 7) and coupled to the cache memory and adapted to process iSCSI requests received on the inbound network interface in association with the cache memory and adapted to selectively forward processed iSCSI requests to a destination device via the outbound network interface. (Mullendore-Paragraph 72, Figure 7)

Mullendore disclosed (re. Claim 15) _wherein the cache memory is used by the control element to store data blocks exchanged between a first device coupled to the inbound network interface and a second device coupled to the outbound network interface, and wherein the cache memory is used to return data blocks from the cache memory to the first device in response to a received block level storage request_

directed from the first device to read data blocks from the second device without

forwarding the storage request to the second device.

At the time of the invention it would have been well-known in the networking art

that if a request for data is satisfied by a cache then there would be no need to forward

said request for data. At time of the invention it would have been obvious to person of

ordinary skill in the networking art to combine what was well-known in the art into

Mullendore. The motivation for said combination would have been to improve data

retrieval processing using cache storage.

Mullendore disclosed (re. Claim 18) an improved network router compatible with

TCP/IP protocols and adapted for coupling to one or more host systems and one or

more iSCSI compatible storage devices, the improvement comprising: a SCSI

command and response processor (Mullendore-Paragraph 13) within the router to

process iSCSI commands and responses forwarded through the router; and a cache

memory within the router (Mullendore-Paragraph 72, Figure 7) coupled to the SCSI

command processor for caching data related to iSCSI commands and responses

processed by the SCSI command and response processor.

Mullendore disclosed (re. Claim 18) wherein the SCSI command and response

processor is adapted to conditionally forward received iSCSI commands to a storage

device based on processing of the iSCSI command in association with the cache

memory. (Mullendore-Paragraph 72, Figure 7)

Mullendore disclosed (re. Claim 18) _wherein the SCSI command and response_

processor is adapted to process iSCSI read requests by first attempting to locate

requested data in the cache memory and wherein received iSCSI read requests are

forwarded to a storage device only if the requested data is not located by the processor

in the cache memory.

At the time of the invention it would have been well-known in the networking art

that if a request for data is satisfied by a cache then there would be no need to forward

said request for data.   At time of the invention it would have been obvious to person of

ordinary skill in the networking art to combine what was well-known in the art into

Mullendore. The motivation for said combination would have been to improve data

retrieval processing using cache storage.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7,10,13,17,21,22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Mullendore et al. (US Publication 2003/0185154) further in view of

Liu, Wei et al. (US Publication 2004/0117441).

While Mullendore substantially disclosed the claimed invention Mullendore did

not disclose   (re. Claim 7) wherein the command and response processor is adapted

to process received requests while the requests are temporarily stored for forwarding.

Mullendore did not (re. Claim 10) wherein the command and response processor

is adapted to coalesce multiple block level storage write requests into a coalesced block

level storage write request and wherein the router is adapted to forward the coalesced

block level write request to a destination device in place of the multiple block level

storage write requests.

Liu disclose (re. Claim 7) wherein the command and response processor is adapted to process received requests while the requests are temporarily stored for forwarding. (Liu-Paragraph 9,Paragraph 118)

Liu disclosed (re. Claim 10) wherein the command and response processor is adapted to coalesce multiple block level storage write requests into a coalesced block level storage write request and wherein the router is adapted to forward the coalesced block level write request to a destination device in place of the multiple block level storage write requests. (Liu-Paragraph 9,Paragraph 118)

Mullendore and Liu are analogous art because they present concepts and practices regarding routing of iSCSI write requests using a router cache. At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine Liu into Mullendore. The motivation for said combination would have been (Liu-Paragraph 4) to improves the data transmit characteristics between local and remote storage.

Mullendore-Liu disclosed (re. Claim 13, 17) coalescing multiple received block level storage requests into a coalesced block level storage request; and forwarding the coalesced block level storage request to a destination device. (Liu-Paragraph 9,Paragraph 118)

Mullendore-Liu disclosed (re. Claim 21) wherein the SCSI command and response processor is adapted to process iSCSI write requests by storing the

associated write data in the cache memory. (Liu-Paragraph 9,Paragraph 118)

Mullendore-Liu disclosed (re. Claim 22) wherein the SCSI command and response processor is further adapted to coalesce data stored in the cache memory into a larger coalesced write request and is further adapted to route the coalesced write request to the storage device. (Liu-Paragraph 9,Paragraph 118)

Response to Arguments

Applicant's arguments filed 10/24/2007 have been fully considered but they are not persuasive.

The Applicant presents the following argument(s) [*in italics*]:

... While Applicant admits that Mullendore uses the word "cache" he provides no explanation of its function other than as a buffer to hold data in far-end switch 240 ...Mullendore teaches nothing more than a simple buffer for "speed matching" ...

The Examiner respectfully disagrees with the Applicant.

The Applicant appears to be differentiating a cache from buffer memory and indicates that a buffer memory cannot be used for cache storage. The Examiner notes that the Applicant Specification Page 9 Lines 5-10 indicate claimed invention as being embodied by a cache buffer memory for locating data within the cache buffer memory in

expedited fashion. Thus the Examiner maintains there is no distinction between the claimed invention and Mullendore's router cache.

The Applicant presents the following argument(s) [*in italics*]:

... Nothing in Mullendore teaches the complexity of a router that processes the block level storage requests exchanged between a first and second iSCSI device coupled through the router...

The Examiner respectfully disagrees with the Applicant.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., '*complex requests*') are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

The Applicant presents the following argument(s) [*in italics*]:

There is no art provided by the Examiner or any suggestion in the art to apply cache memory management techniques and structures within a network appliance router (a TCP/IP router). As noted, Mullendore suggest nothing more than well-known speed-matching buffer...

The Examiner respectfully disagrees with the Applicant.

The Applicant Specifications Page 3 indicates well-known caching techniques such that subsequent requests for the same data may be satisfied by the cache buffer memory.

Where Mullendore disclosed caching the data in the router, it would have been obvious to incorporate well-known caching techniques in said cache.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
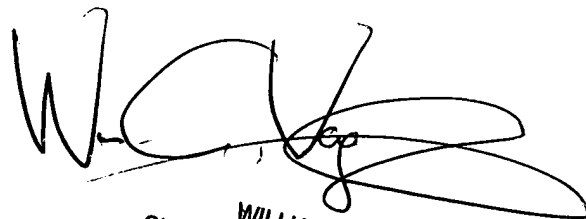
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Bengzon whose telephone number is (571) 272-3944. The examiner can normally be reached on Mon. thru Fri. 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on (571)272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gcb

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